The Department of Mathematics offers a wide variety of majors and minors. In addition to the degree programs described below, many students pursue joint majors in mathematics and other disciplines that utilize mathematics. The most popular of these are mathematics/computer science and mathematics/physics. A joint major is obtained by completing the degree requirements for both majors. Minor programs are described below under “Undergraduate Curricular Requirements.”

At the graduate level, the department offers the M.S., M.A.T., and Ph.D. degrees in mathematics. Graduate training in mathematics prepares students for careers in teaching or research and development. Employment opportunities include universities, colleges, industries, and government agencies. The Ph.D. is generally required for teaching and research at the university level. The M.S. qualifies students to teach at junior colleges, some four-year colleges, and for many positions in industry. The M.A.T. prepares students for secondary teaching and for some junior college positions. A baccalaureate degree in mathematics is generally required for admission to the graduate program; however, many students of science and technology can be admitted to the program with few undergraduate deficiencies.

The need for persons with quantitative skills is increasing dramatically as the world grows more complex. Mathematicians and statisticians have employment opportunities in business, industry, government, and teaching. Training in mathematics, with its emphasis on problem solving, analysis, and critical thinking, is excellent preparation for graduate programs in engineering, science, business, or law. In fact, persons planning careers in almost any field will find their opportunities enhanced by the study of mathematics and statistics. The programs are intended to provide students just such enhancement. It is generally the case that the person who develops his or her quantitative skills has increased ability to attack many of the complex problems of society. Advances in science, technology, the social sciences, business, industry, and government become more and more dependent on precise analysis and the extraction of information from large quantities of data. Environmental problems, for example, require careful analysis by persons (or teams of persons) with skills in mathematics, statistics, and computer science as well as in biology, geology, physics, and many other fields.

The demand for teachers of mathematics is greater now than ever before. Nearly every school district in the nation has a shortage of teachers trained in mathematics. UI offers a broadly based program leading to teacher certification, through enrollment either in the Department of Mathematics or in the College of Education and completion of a major or minor in mathematics.

Mathematics

The body of mathematical knowledge that has grown over the past 2,000 years is a magnificent human achievement, and it is growing more rapidly than ever before. The habits of systematic and creative thought developed in the study of mathematics are recognized as invaluable in most areas of human endeavor. University of Idaho’s B.S. options in mathematics are designed to introduce the student to the excitement of mathematical ideas; they allow the maximum possible freedom to explore those areas of mathematics that the student finds most interesting.

The department has a sound program in mathematics with a proven record of preparing students for successful graduate study at the very best universities in the nation. There are sequences of courses in calculus, advanced calculus, linear algebra, differential equations, number theory, abstract algebra, topology, geometry, statistics, complex analysis, combinatorics, and mathematical analysis. Students of mathematics who do not go to graduate school are well prepared for industrial, governmental, or teaching jobs if they have some additional exposure to computer science, education, or one of the natural, social, or applied sciences.

Applied Mathematics

Many of the greatest achievements in mathematics were inspired by problems in the natural sciences; today mathematics has wide application in both the natural and social sciences. Applied mathematics provides a broad arena for intellectual and creative impulses of people. The applied options in the mathematics B.S. degree allows a choice of the computation, mathematical biology, or quantitative modeling options. Each of these is discussed briefly below. Many students interested in applications of mathematics pursue a joint major in some other department.

Applied - Computation Option

The advent of computers has changed nearly every aspect of society. As computation has become both more important and more feasible, it has inspired the development of several fields of study within mathematics. The computation option of the applied mathematics degree provides training in the mathematics applicable to computer science and technology. Many students pursue this option jointly with a computer science major.

Applied - Mathematical Biology Option

Biology is undergoing an information revolution. Recent technological advances have created an avalanche of biological data and a quantification of biology that has transformed the subject. The manipulation, analysis and interpretation of large, complex datasets is now central to much of biology. Moreover, mathematical models of the dynamics of biological systems can now be put in contact with empirical work in a way that allows a true synthesis of theory and data. This option will provide the needed cross training required for success in careers in mathematical biology.

Applied - Quantitative Modeling Option

The role of modeling is essential in modern interdisciplinary research involving mathematics and the sciences. This option gives students an opportunity to learn about mathematical modeling with particular emphasis on the life sciences and the physical sciences. It provides an opportunity for students to create a very strong double major program and provides ideal preparation for future graduate training in the sciences.

Faculty members in the Department of Mathematics will be happy to answer questions about specific programs and courses. Such questions can also be addressed to the department chair (Brink 300; phone 208/885-6742).
Majors

• Mathematics (B.S.) (https://catalog.uidaho.edu/colleges-related-units/science/mathematics/mathematics-bs)

Minors

• Mathematics Minor (https://catalog.uidaho.edu/colleges-related-units/science/mathematics/mathematics-minor)

Mathematics Graduate Program

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Mathematics. See the College of Graduate Studies (https://catalog.uidaho.edu/colleges-related-units/graduate-studies) section for the general university requirements applicable to each degree.

• Mathematics (M.S.) (https://catalog.uidaho.edu/colleges-related-units/science/mathematics/mathematics-ms)
• Mathematics (M.A.T.) (https://catalog.uidaho.edu/colleges-related-units/science/mathematics/mathematics-mat)
• Mathematics (Ph.D.) (https://catalog.uidaho.edu/colleges-related-units/science/mathematics/mathematics-phd)